

ENGINEERING DIRECTIVE

CHIEF ENGINEER

PERMIT REQUIREMENTS FOR THE USE OF CONTROLLED DENSITY FILL IN TRENCH CUTS UNDER PAVEMENT

This Directive supersedes Engineering Directive E-93-006, dated October 21, 1993.

Controlled Density Fill (CDF) shall be the standard backfill material whenever the Massachusetts Highway Department (MassHighway) issues a permit to trench under pavement. All work shall conform to the relevant provisions of MassHighway's Standard Specifications for Highways and Bridges, dated 1995, as amended. CDF shall meet the requirements of Section M4.08.0.

For trench cuts within the paved surface of a state highway where such trench cuts have a depth of four (4) feet or less, CDF for backfill is *mandatory*.

For trench cuts within the paved surface of state highway where such trench cuts have a depth greater than four (4) feet, the use of CDF for backfill is desirable, but not mandatory. The appropriate District Highway Director may approve a substitute backfill material for use in these circumstances provided the following minimum requirements are met by the permit applicant (grantee):

1. The grantee must use a suitable backfill material which meets the requirements of MassHighway. MassHighway reserves the right to reject any material based on its physical properties, installation methods, or any other reasons which would cause the material to be unfit to use.
2. All methods used to determine and verify the proper compaction of backfill shall be in accordance with AASHTO Standard Specifications for *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)* (Designation T238-86 Method B - Direct Transmission shall be used to determine in-place density) and *Moisture Content of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)* (Designation T239-91).

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All methods and work shall be performed by a technician on location certified in "soils" by the New England Transportation Technician Certification Program (NETTCP). All data and results shall be submitted to the appropriate District Highway Director for review and acceptance.

3. Prior to the issuance of a permit a Performance Bond in the amount of \$50,000.00 is required by the grantee to warranty the work prescribed in this directive. The life of the Performance Bond shall be three (3) years from the date MassHighway receives the Completion of Work Form.

The Performance Bond shall be in a form satisfactory to MassHighway, furnished by a surety company incorporated pursuant to M.G.L. Chapter 175, section 105 or authorized to do business in the Commonwealth under M.G.L. Chapter 175, section 106. The name of the agency or agent writing these bonds shall be identified within the bond.

4. The Completion of Work Form shall be sent to MassHighway via certified mail as soon as possible after the completion of the physical work. MassHighway shall hold the Permit on file for a period of not less than three (3) years.
5. The grantee shall assume full responsibility for the structural integrity of any trench which does not contain CDF as backfill material. This responsibility shall remain in place for a period of three (3) years after the completion of work which time starts with MassHighway receiving the Completion of Work Form.

The grantee shall respond to trench maintenance requests by the Chief Engineer and/or the District Highway Director within two (2) working days. Non-response within the specified time will result in the required maintenance work being done by MassHighway, with all expenses charged to the grantee.

6. All required signs and traffic warning devices shall be the responsibility of and furnished by the grantee. All signs and devices shall be in accordance with the current Manual on Uniform Traffic Control Devices. The number and location of all signs and devices shall be deemed necessary by the Chief Engineer and/or the District Highway Director for the safe and efficient performance of the work and safety of the traveling public.

Care must be exercised so as not to disturb any existing State Highway Traffic Duct Systems or any underground structures that exist. If said system is disturbed, it shall be restored immediately to its original condition. Any damaged traffic lines shall be restored to its original condition. All expenses for restoring conditions shall be charged to the grantee.

7. Uniformed police officers shall be provided and compensated by the grantee and shall be in attendance to direct traffic and for the safety of the public and workers unless otherwise directed by the Chief Engineer and/or District Highway Director.

8. The grantee shall indemnify and save harmless the Commonwealth and its Highway Department against all suits, claims or liability of every name and nature arising at any time out of or in consequence of the acts of the grantee in the performance of the work covered by the permit and or failure to comply with terms and conditions of the permit whether by themselves or their employees or subcontractors.
9. These requirements shall be incorporated into any permit issued that includes trench cuts within the paved surface of a state highway and where the use of CDF for backfill is not proposed.